AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-26 (canceled).

27. (currently amended): A computer readable medium storing a computer program for causing a computer to implement functions of coding a motion vector, said functions comprising:

performing an affine motion estimation to obtain ~~of~~ affine motion parameters;

converting the affine motion parameters to a predetermined number of translational motion vectors; and

coding the difference between the converted translational motion vectors of a current block and the converted translational motion vectors of a previous block.

28. (previously presented): A computer readable medium storing a computer program for causing a computer to implement functions of coding a motion vector, said functions comprising:

performing an affine motion estimation to obtain affine motion parameters; and

converting the affine motion parameters to a predetermined number of translational motion vectors.

29. (previously presented): The computer readable medium of claim 28, further comprising quantizing the converted translational motion vectors to fixed-point numbers having a predetermined accuracy.

30. (previously presented): A computer readable medium storing a computer program for causing a computer to implement functions of decoding a motion vector, said functions comprising:

     receiving encoded data;

     decoding the received data to obtain translational motion vectors;

     converting the obtained translational motion vectors to affine motion parameters; and

     performing motion compensation using the obtained affine motion parameters.

31. (previously presented): The computer readable medium of claim 27, wherein an image being coded comprises a plurality of blocks, wherein the affine motion parameters are used to determine a motion of each pixel in a block among the plurality of blocks of the image, wherein the motion varies for the each pixel in the block based on values of the affine motion parameters and a location of the each pixel in the block of the image, and the motion for the each pixel varies independent of motion of the other pixels in the block.

32. (previously presented): The computer readable medium of claim 31, wherein each of the predetermined number of the translational motion vectors specifies a motion of each of the plurality of blocks in the image, wherein the predetermined number of the translational motion

vectors is equal to a number of the plurality of blocks in the image, wherein each of the plurality

of blocks includes a plurality of pixels.

33. (previously presented): The computer readable medium of claim 28, wherein an

image being coded comprises a plurality of blocks, wherein the affine motion parameters are

used to determine a motion of each pixel in a block among the plurality of blocks of the image,

wherein the motion varies for the each pixel in the block based on values of the affine motion

parameters and a location of the each pixel in the block of the image, and the motion for the each

pixel varies independent of motion of the other pixels in the block.

34. (previously presented): The computer readable medium of claim 33, wherein each of

the predetermined number of the translational motion vectors specifies a motion of each of the

plurality of blocks in the image, wherein the predetermined number of the translational motion

vectors is equal to a number of the plurality of blocks in the image, wherein each of the plurality

of blocks includes a plurality of pixels.

35. (previously presented): The computer readable medium of claim 30, wherein an

image being coded comprises a plurality of blocks, wherein the affine motion parameters are

used to determine a motion of each pixel in a block among the plurality of blocks of the image,

wherein the motion varies for the each pixel in the block based on values of the affine motion

parameters and a location of the each pixel in the block of the image, and the motion for the each

pixel varies independent of motion of the other pixels in the block.

36. (previously presented): The computer readable medium of claim 35, wherein each of the obtained translational motion vectors specifies a motion of each of the plurality of blocks in the image, wherein a first number of the translational motion vectors is equal to a second number of the plurality of the blocks in the image, wherein each of the plurality of the blocks includes a plurality of pixels.

37. (previously presented): The computer readable medium of claim 27, wherein the converting the affine motion parameters to the predetermined number of translational motion vectors comprises obtaining motion vectors of the center points of sub-blocks A, B, C, and D of the current block by using $(v_{X,A}, v_{Y,A}) = (a_0 + a_1\alpha + a_2\alpha, a_3 + a_4\alpha + a_5\alpha)$, $(v_{X,B}, v_{Y,B}) = (a_0 + 3a_1\alpha + a_2\alpha, a_3 + 3a_4\alpha + a_5\alpha)$, and $(v_{X,C}, v_{Y,C}) = (a_0 + a_1\alpha + 3a_2\alpha, a_3 + a_4\alpha + 3a_5\alpha)$ based on

$$v_X(i,j) = 1/(2\alpha)(4\alpha - i - j)v_{X,A} + 1/(2\alpha)(-2\alpha + i)v_{X,B} + 1/(2\alpha)(-2\alpha + j)v_{X,C}, \text{ and}$$

$$v_Y(i,j) = 1/(2\alpha)(4\alpha - i - j)v_{Y,A} + 1/(2\alpha)(-2\alpha + i)v_{Y,B} + 1/(2\alpha)(-2\alpha + j)v_{Y,C},$$

where the size of the current block is $S \cdot S$, and the constant α is S/4+1/2.

38. (previously presented): The computer readable medium of claim 28, wherein the converting the affine motion parameters to the predetermined number of translational motion vectors comprises obtaining motion vectors of the center points of sub-blocks A, B, C, and D of the current block by using $(v_{X,A}, v_{Y,A}) = (a_0 + a_1\alpha + a_2\alpha, a_3 + a_4\alpha + a_5\alpha)$, $(v_{X,B}, v_{Y,B}) = (a_0 + 3a_1\alpha + a_2\alpha, a_3 + 3a_4\alpha + a_5\alpha)$, and $(v_{X,C}, v_{Y,C}) = (a_0 + a_1\alpha + 3a_2\alpha, a_3 + a_4\alpha + 3a_5\alpha)$ based on

$$v_X(i,j) = 1/(2\alpha)(4\alpha - i - j)v_{X,A} + 1/(2\alpha)(-2\alpha + i)v_{X,B} + 1/(2\alpha)(-2\alpha + j)v_{X,C}, \text{ and}$$

$$v_Y(i,j) = 1/(2\alpha)(4\alpha - i - j)v_{Y,A} + 1/(2\alpha)(-2\alpha + i)v_{Y,B} + 1/(2\alpha)(-2\alpha + j)v_{Y,C},$$

where the size of the current block is $S \cdot S$, and the constant α is S/4+1/2.